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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. | |
|--|-------------|----------------------|------------------------------|------------------|--------------|
| 10/751,946 | 01/07/2004 | Susana Curatolo | 32492/41888 | 3621 | |
| 7590 | 02/24/2006 | | EXAMINER PASCHALL, MARK H | | |
| Barnes & Thornburg Suite 900 750 17th Street, N.W. Washington, DC 20006 | | | ART UNIT | | PAPER NUMBER |
| | | | 3742 | | |

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------|------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/751,946 | CURATOLO, SUSANA | |
| | Examiner | Art Unit | |
| | Mark H. Paschall | 3742 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-5, 19 and 20 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6-18, 21 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,2, 6-

10,11/2,11/9,12/2,12/9,13/1,13/2,13/9,14/1,14/2,14/9,15/1,15/2,15/9,17/1,17/2,18/1,18/2,21,22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki in view of piper 267'. Miyazaki, as set forth in the prior rejection teaches the claimed subject matter except for showing use of a tapered envelope, as now set forth in the amended claims. Barring further description of the same the elliptical end of the envelope in Miyazaki does taper. In addition, the patent to Piper is applied for showing use of a tapered envelope at end 4, see column 6, and line 24. A more effective heating of the material is effected, and in view of this teaching it would have been obvious to modify the Miyazaki system to use a tapered end, to effect a more controlled heating and nucleation of the materials at the tapered end. Note that vaporization and hence a plasma is established as per claim 6 and since such flow begins at the tapered end as per the Piper teaching, the plasma would flow from that end and electrons would also emit from that end as per claim 21. Note that both heat and magnetic field would be produced accordingly, inherently in such flow, as per claims 7 and 8. use of a particular substrate as per claim 9 is considered a matter of design dependent on the end use of the device. Use of particular percentages of temperatures as per claim 12 is likewise

obvious to the artisan, also dependent on materials used and pressures used. Use of tear or ovoid shapes as per claims 14 and 15 is a matter of design since the tapered shape set forth in the rejection does work the same as such shapes to force a plasma flow. AS per claim 18 the elliptical end of tube 1 in Figure 1 is considered tapered, . AS per claim 22 note the interior of the envelope in Piper is tapered.

Response to Arguments

Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection. Applicant's amendments to the claims necessitated the incorporation of the Piper teaching in lieu of the Ware teaching, in the instant rejection, by changing spherically shaped to tapered, and removal of the elliptical shape of claim 16. the rejected claims do not set forth use of a particular shape for production of the vortical flow, such as set forth in claim 3. Claims 3-5, 11/3, 11/5, 12/3, 12/5, 13/3, 13/5, 14/3, 14/5, 15/3, 15/5, 17/3, 18/3, 18/5, 19 and 20 are allowable or contain allowable subject matter , for claiming this vortical relationship relative to the shape of the envelope.

Allowable Subject Matter

Claims 3-5, 11/3, 11/5, 12/3, 12/5, 13/3, 13/5, 14/3, 14/5, 15/3, 15/5, 17/3, 18/3, 18/5, 19 and 20 are allowed, for the reasons set forth in the above paragraph.

Conclusion

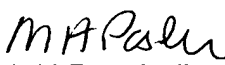
Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark H. Paschall whose telephone number is 703 308-1642. The examiner can normally be reached on 7am - 3pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Mark H Paschall
Primary Examiner
Art Unit 3742

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